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(54) **MUCOSAL MEMBRANE RECEPTOR AND USES THEREOF**(71) Applicant: **Universiteit Gent**, Ghent (BE)(72) Inventors: **Kristien Rasschaert**, Merelbeke (BE); **Bruno Goddeeris**, Merelbeke (BE); **Eric Cox**, Merelbeke (BE); **Dieter Deforce**, Ghent (BE)(73) Assignee: **Universiteit Gent**, Ghent (BE)

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See application file for complete search history.

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(57) **ABSTRACT**

The invention is based on the identification of aminopeptidase N (APN) as the receptor for F4 fimbriae of enterotoxigenic *E. coli* (ETEC). Based on the observation that oral administration of F4 fimbriae induces a protective intestinal mucosal immune response against a subsequent challenge with F4 ETEC, and the observation that the internalization of said F4fimbriae is clathrin-mediated, the present invention provides the characterization of APN as a target useful in: in an *in vitro* assay to screen for molecules that are capable to mimic the clathrin-mediated F4 endocytosis; in an *in vitro* assay to screen for molecules that are capable to modulate the binding of F4 fimbriae with APN; in the development of a carrier for the delivery of antigens/therapeutics, i.e. immunomodulators to the intestinal submucosa or the intestinal mucosa-associated lymphoid tissue, wherein said carrier comprises an APN specific target molecule that mimics the clathrin-mediated F4 endocytosis. The use of the carriers thus identified or the treatments thus identified, in a method of inducing an antigen specific intestinal mucosal immune response, and/or in the treatment of bacterial diarrhea, is a further aspect of the present invention.